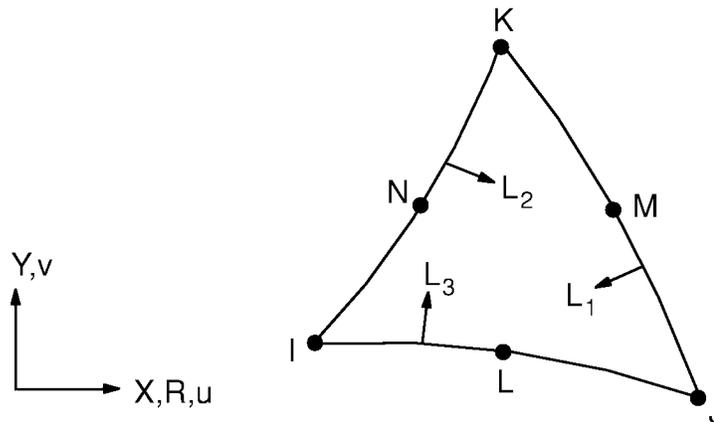# 14.146 PLANE146 — 2–D Triangular Structural Solid p–Element

Matrix or Vector	Geometric Shape Functions	Solution Shape Functions	Integration Points
Stiffness Matrix	Equations (12.6.2–1) and (12.6.2–2)	Polynomial variable in order from 2 to 8	Variable
Thermal and Inertial Load Vector	Same as stiffness matrix	Polynomial variable in order from 2 to 8	Variable
Pressure Load Vector	Same as stiffness matrix, specialized to the edge	Polynomial variable in order from 2 to 8	Variable

Load Type	Distribution
Element Temperature	Same as geometric shape functions across element, constant thru thickness or around circumference
Nodal Temperature	Same as element temperature distribution
Pressure	Linear across each face

Reference: Szabo and Babuska(192)

14.146.1   Other Applicable Sections

Chapter 2 describes the derivation of structural element matrices and load vectors as well as stress evaluations.